Claims

I claim:

1. An A_1AdoR antagonist that has at least one characteristic chosen from the group consisting of:

a. the compound is metabolized both by CYP450 and by a non-oxidative metabolic enzyme or system of enzymes;

b. the compound has a short (up to four (4) hours) non-oxidative metabolic half-life;

c. the compound contains a hydrolysable bond that can be cleaved non-oxidatively by hydrolytic enzymes;

d. the primary metabolites of the compound result from the non-oxidative metabolism of the compound;

e. the primary metabolites are soluble in water at physiological pH;

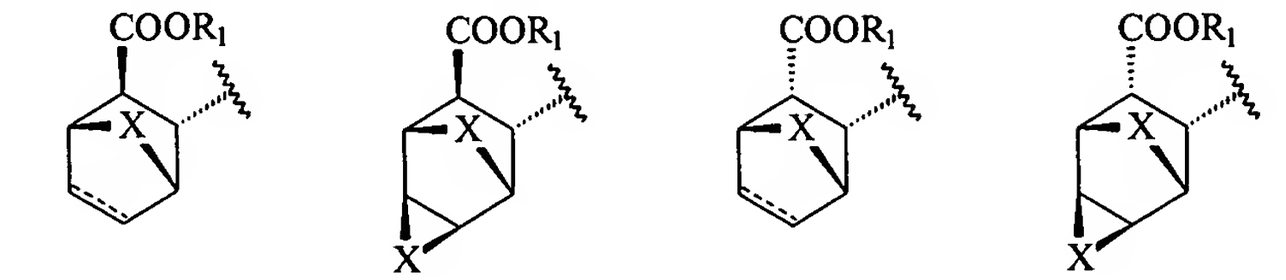
f. the primary metabolites have negligible inhibitory activity at the IK_R (HERG) channel at normal therapeutic concentration of the parent drug in plasma;

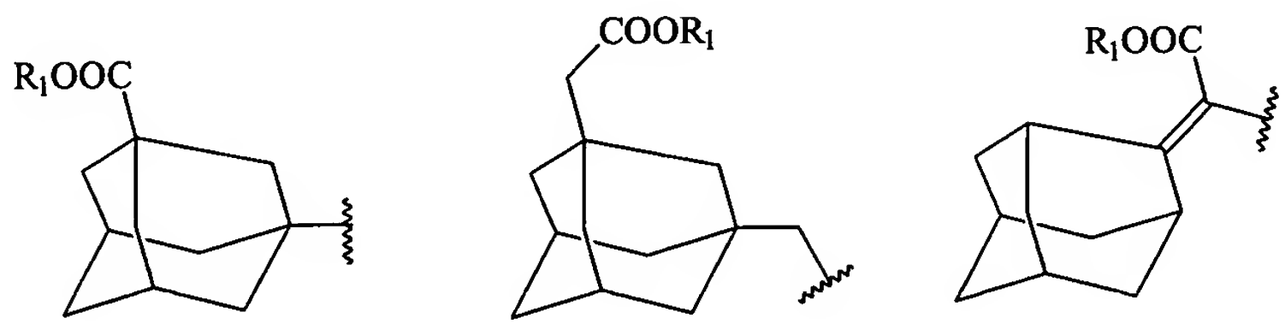
g. the compound, as well as the metabolites thereof, does not cause metabolic DDI when co-administered with other drugs; and

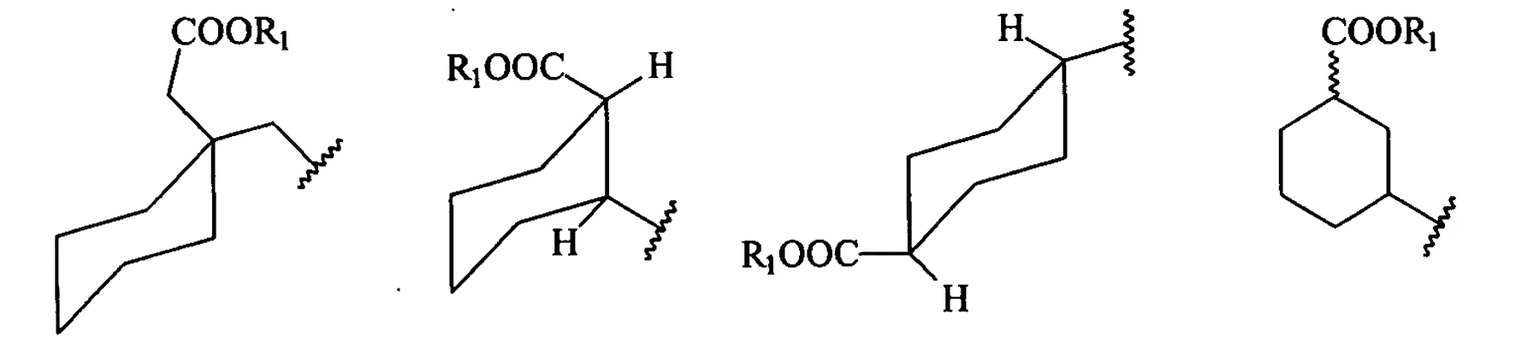
h. the compound, as well as metabolites thereof, does not elevate LFT values when administered alone.

2. The compound, according to claim 1, which is a 1,3 dipropylxanthine with an ester function at the 8-position.

3. The compound, according to claim 1, wherein said ester function has a structure selected from the group consisting of:







and salts thereof;

wherein R_1 is alkyl.

4. A pharmaceutical composition comprising an A_1AdoR antagonist that has at least one characteristic chosen from the group consisting of:

a. the compound is metabolized both by CYP450 and by a non-oxidative metabolic enzyme or system of enzymes;

b. the compound has a short (up to four (4) hours) non-oxidative metabolic half-life;

c. the compound contains a hydrolysable bond that can be cleaved non-oxidatively by hydrolytic enzymes;

d. the primary metabolites of the compound result from the non-oxidative metabolism of the compound;

e. the primary metabolites are soluble in water at physiological pH;

f. the primary metabolites have negligible inhibitory activity at the IK_R (HERG) channel at normal therapeutic concentration of the parent drug in plasma;

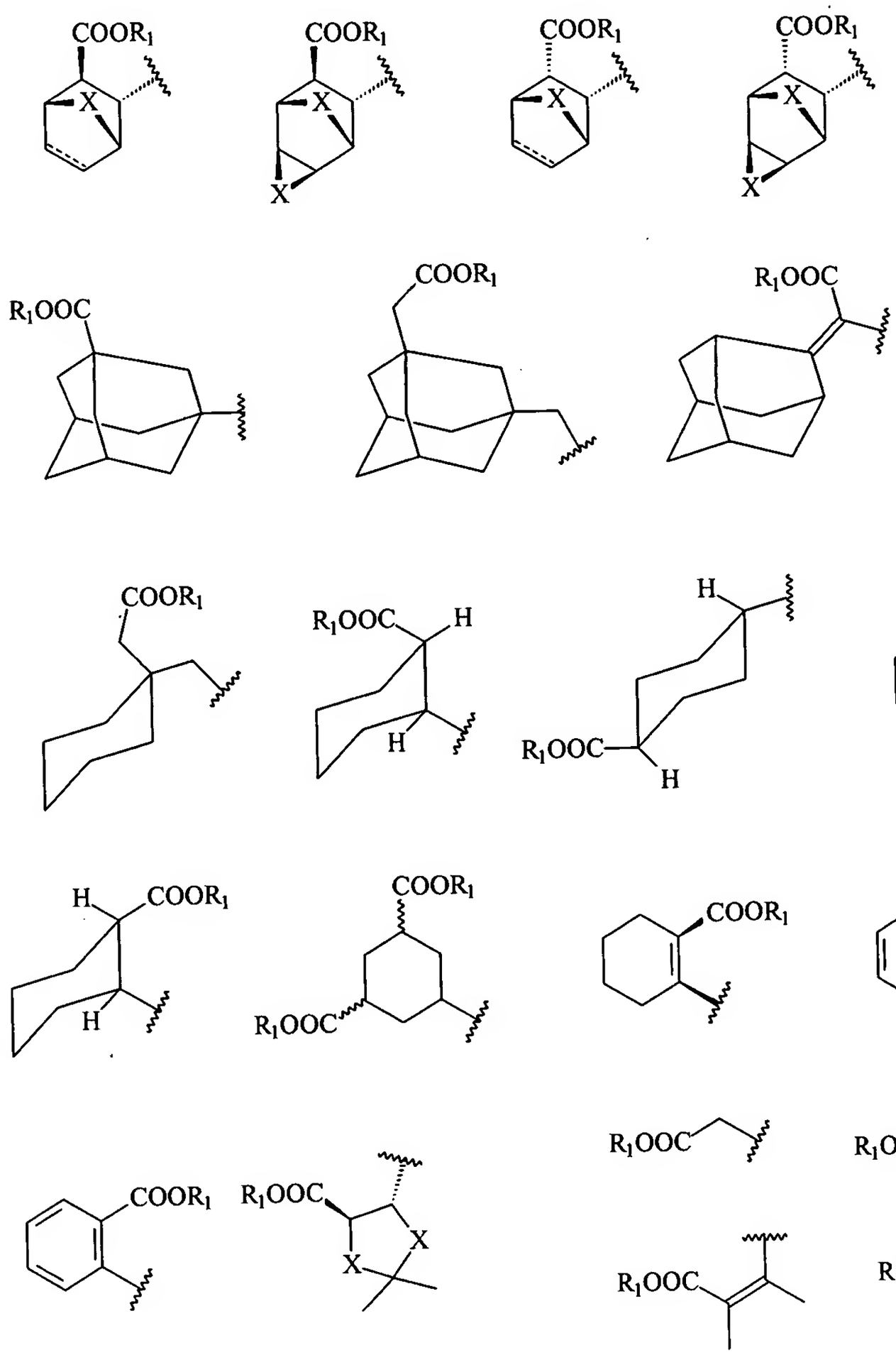
g. the compound, as well as the metabolites thereof, does not cause metabolic DDI when co-administered with other drugs; and

h. the compound, as well as metabolites thereof, does not elevate LFT values when administered alone;

wherein said composition further comprises a pharmaceutical carrier.

5. The pharmaceutical composition, according to claim 4, wherein said compound is a 1,3 dipropylxanthine that has an ester function at the 8-position.

6. The pharmaceutical composition, according to claim 4, wherein said ester function has a structure selected from the group consisting of:



and salts thereof;

wherein R_1 is alkyl.

7. A method for inhibiting the A_1Ado receptor in an individual in need of such treatment wherein said method comprises administering to said individual a pharmaceutical composition comprising an A_1AdoR antagonist that has at least one characteristic chosen from the group consisting of:

a. the compound is metabolized both by CYP450 and by a non-oxidative metabolic enzyme or system of enzymes;

b. the compound has a short (up to four (4) hours) non-oxidative metabolic half-life;

c. the compound contains a hydrolysable bond that can be cleaved non-oxidatively by hydrolytic enzymes;

d. the primary metabolites of the compound result from the non-oxidative metabolism of the compound;

e. the primary metabolites are soluble in water at physiological pH;

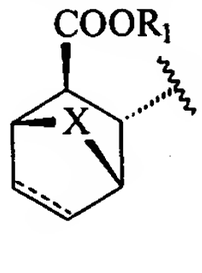
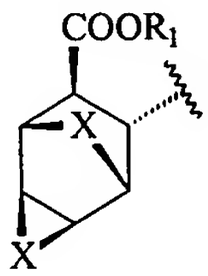
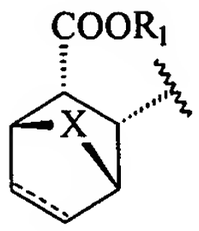
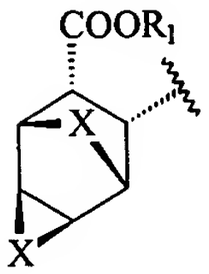
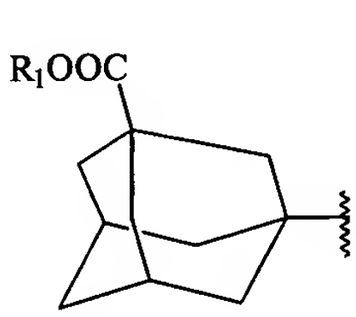
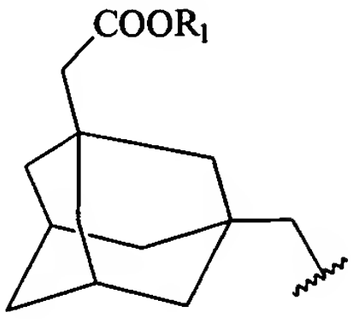
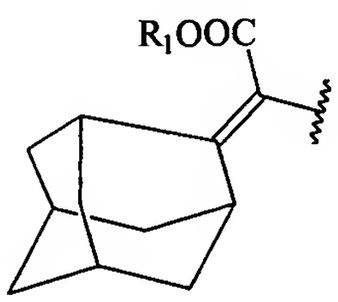
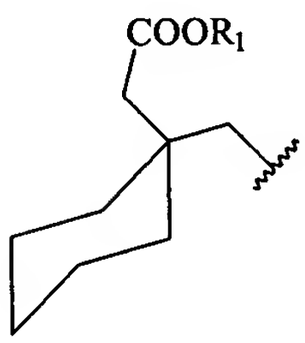
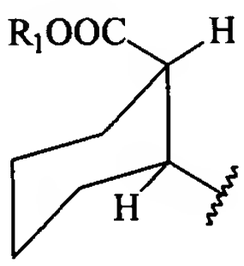
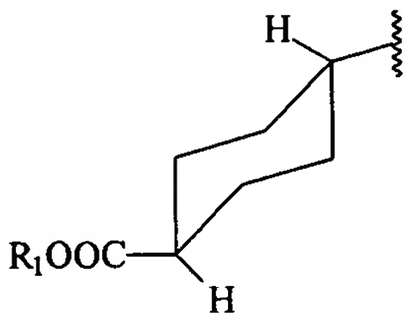
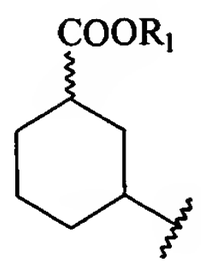
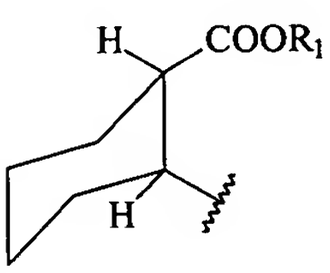
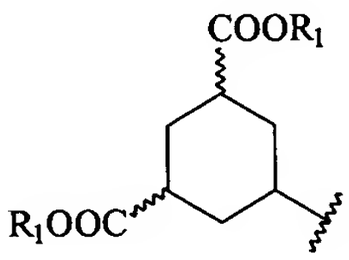
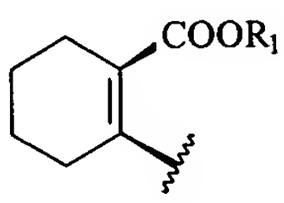
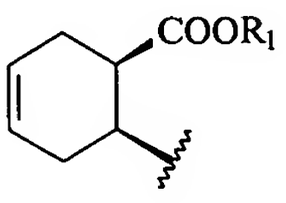
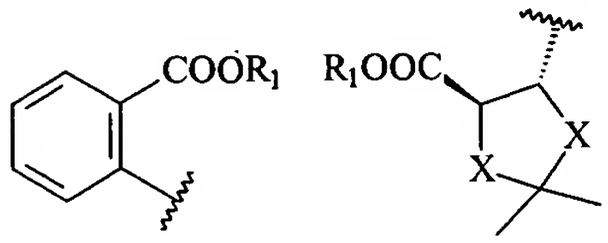
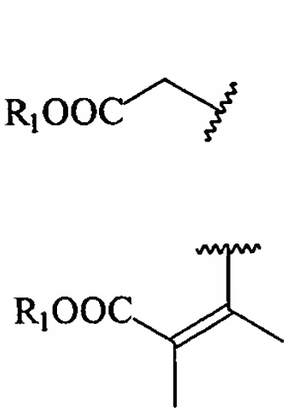
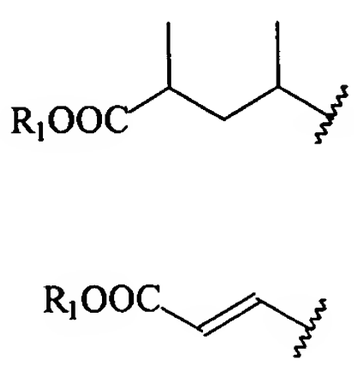
f. the primary metabolites have negligible inhibitory activity at the IK_R (HERG) channel at normal therapeutic concentration of the parent drug in plasma;

g. the compound, as well as the metabolites thereof, does not cause metabolic DDI when co-administered with other drugs; and

h. the compound, as well as metabolites thereof, does not elevate LFT values when administered alone.

8. The method, according to claim 7, wherein said compound is a 1,3 dipropylxanthine with an ester function at the 8-position.

9. The method, according to claim 7, wherein said ester function has a structure selected from the group consisting of:

and salts thereof;

wherein R_1 is alkyl.

10. The method, according to claim 7, wherein the individual is a human.

11. The method, according to claim 7, wherein said individual has congestive heart failure.